

IN THE CLAIMS:

1. (Previously Presented) A method for driving a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, the method comprising:

continuously applying a potential difference, different from a potential difference in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate.

2. (Previously Presented) A liquid crystal device having a driving circuit to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, the liquid crystal device comprising:

different potential difference continuous application means for continuously applying a potential difference, different from a potential difference in a normal image display period, between the

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pixel electrode on the first substrate and the opposing electrode on the second substrate.

3. (Previously Presented) A method for driving a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors, gate lines and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, the method comprising:

applying a primary potential difference, different from a potential difference in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate;

applying a secondary potential difference smaller than the primary potential difference; and

alternately applying a primary potential difference and applying a secondary potential difference at least one time each during a repeatable cycle period, the length of a primary potential difference application period being from at least 50% to no more than 95% of the length of one repeatable cycle period.

4. (Previously Presented) The method for driving a liquid crystal device according to claim 3, further comprising controlling the time required for switching the potential difference to be no more than 30% of a single repeatable cycle period when the primary potential difference and the secondary potential difference are alternately applied at least one time during said single period.

5. (Previously Presented) A method for driving a liquid crystal device, wherein applying a primary potential difference according to claim 3 comprises varying a common electrode potential by continuously applying a primary potential difference, wherein storage capacities connected to the pixel electrodes are located between the pixel electrodes and common electrodes having potentials common to all the pixel electrodes, so that, by means of a ratio between pixel electrode capacities including the storage capacities and capacities between parasitic gate lines of the thin-film transistors and the pixel electrodes, potential variation of the pixel electrodes accompanied by potential variation of the common electrodes results in the potential difference.

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6. (Previously Presented) The method for driving a liquid crystal device according to claim 5, varying a common electrode potential comprises making voltage applied to the common electrodes equal to voltage used for gate signals.

7. (Previously Presented) A method for driving a liquid crystal device, wherein applying a primary potential difference according to claim 3 comprises varying a gate line potential by continuously applying a primary potential difference, wherein storage capacities connected to the pixel electrodes are located between the pixel electrodes and the gate lines one line front or behind, so that, by means of a ratio between pixel electrode capacities including the storage capacities and capacities between parasitic gate lines of the thin-film transistors and the pixel electrodes, potential variation of the pixel electrodes accompanied by potential variation of the gate lines one line front or behind results in the potential difference.

8. (Previously Presented) A driving circuit of a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a

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first substrate on which thin film transistors, gate lines and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, the driving circuit comprising:

primary potential difference application means for applying a primary potential difference, different from a potential difference in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate;

secondary potential difference application means for applying a secondary potential difference smaller than the primary potential difference; and

repeat control means for alternately executing the primary potential difference application means and the secondary potential difference application means at least one time each during a repeated period, the length of a primary potential difference application period being in the range of from at least 50% to no more than 95% of a length of one repeated period.

9. (Previously Presented) The driving circuit of the liquid crystal device according to claim 8, further comprising period

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switching control means for controlling a time required for switching between the potential difference in a primary potential difference application period and the potential difference in a secondary potential difference application period to be no more than 30% of a single period of one repeated period when the primary potential difference and the secondary potential difference are alternately applied in the repeat control means.

10. (Previously Presented) A driving circuit of a liquid crystal device, wherein the primary potential difference application means according to claim 8 comprises means for varying a common electrode potential by using means for continuously applying a primary potential difference, wherein storage capacities connected to the pixel electrodes are located between the pixel electrodes and common electrodes having potentials common to all the pixel electrodes, so that, by means of a ratio between pixel electrode capacities including the storage capacities and capacities between parasitic gate lines of the thin-film transistors and the pixel electrodes, potential variation of the pixel electrodes accompanied by potential variation of the common electrodes is used to obtain the potential difference.

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11. (Previously Presented) The driving circuit of the liquid crystal device according to claim 10, wherein the means for varying common electrode potential by using means for continuously applying a primary potential difference comprises means for making voltage applied to the common electrodes equal to voltage used for gate signals.

12. (Previously Presented) A driving circuit of a liquid crystal device, wherein the primary potential difference application means according to claim 8 comprises means for varying a gate line potential by using means for continuously applying a primary potential difference, wherein storage capacities connected to the pixel electrodes are located between the pixel electrodes and the gate lines one line front or behind, so that, by means of a ratio between pixel electrode capacities including the storage capacities and capacities between parasitic gate lines of the thin-film transistors and the pixel electrodes, potential variation of the pixel electrodes accompanied by potential variation of the gate lines one line front or behind results in the potential difference.

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13. (Previously Presented) A method for driving a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors, gate lines and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, the method comprising:

applying a primary potential difference, different from a potential difference in a normal image display period, between the pixel electrode and the opposing electrode;

applying a secondary potential difference smaller than the primary potential difference;

alternately executing applying a primary potential difference and applying a secondary potential difference at least one time each; and

applying to source lines a potential in which a pixel electrode potential variation is reflected in an opposing electrode potential, the pixel electrode potential variation being induced by potential variation of the gate lines when the pixel transistor is switched to OFF from ON in applying a secondary potential difference, to charge the pixel electrodes.

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14. (Previously Presented) The method for driving the liquid crystal device according to claim 13, wherein applying a secondary potential difference sets the secondary potential difference within a range of ± 1 V.

15. (Previously Presented) The method for driving the liquid crystal device according to claim 13, wherein applying a secondary potential difference applies a potential equal to a potential of the opposing electrode to the source lines when the pixel transistors are OFF in a period during which the secondary potential difference is applied.

16. (Previously Presented) The method for driving the liquid crystal device according to claim 13, wherein applying a potential to source lines is performed at least once in an initial stage of a driving period for transition of the liquid crystal layer to the bend configuration.

17. (Previously Presented) The method for driving the liquid crystal device according to claim 13, wherein applying a potential

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to source lines is performed at least once in an initial stage of a driving period for transition of the liquid crystal layer to the bend configuration, in an initial stage during which applying a primary potential difference and applying a secondary potential difference are initiated.

18. (Previously Presented) The method for driving the liquid crystal device according to claim 13, further comprising holding a direct current off-voltage in the gate line.

19. (Previously Presented) A driving circuit of a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors, gate lines and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, the driving circuit comprising:

primary potential difference application means for applying a primary potential difference, different from a potential difference in a normal image display period, between the pixel electrode and the opposing electrode;

secondary potential difference application means for applying a secondary potential difference smaller than the primary potential difference;

repeat control means for alternately operating the primary potential difference application means and the secondary potential difference application means at least one time each; and

charging means for applying to source lines a potential in which a pixel electrode potential variation is reflected in an opposing electrode potential, the pixel electrode potential variation being induced by potential variation of the gate lines when the pixel transistor is switched to OFF from ON in a secondary potential difference application period, to charge the pixel electrodes.

20. (Previously Presented) The driving circuit of the liquid crystal device according to claim 19, wherein the secondary potential difference application means is for applying the secondary potential difference within a range of ± 1 V.

21. (Previously Presented) The driving circuit of the liquid crystal device according to claim 19, wherein the secondary

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potential difference application means is for applying a potential equal to a potential of the opposing electrode to the source lines when the pixel transistors are OFF in a period during which the secondary potential difference is applied.

22. (Previously Presented) The driving circuit of the liquid crystal device according to claim 19, further comprising means for operating the charging means at least once in an initial stage of a driving period for transition of the liquid crystal layer to the bend configuration.

23. (Previously Presented) The driving circuit of the liquid crystal device according to claim 19, further comprising means for operating the charging means at least once in an initial stage of a driving period for transition of the liquid crystal layer to the bend configuration, in an initial stage during which the primary potential difference application means and the secondary potential difference application means are initiated.

24. (Previously Presented) The driving circuit of the liquid crystal device according to claim 19, further comprising gate line

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off-voltage direct current holding means for holding a direct current off-voltage in the gate line.

25. (Previously Presented) A method for driving a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors, gate lines and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, the method comprising:

applying a primary potential difference, different from a potential difference in a normal image display period, between the pixel electrode and the opposing electrode;

applying a secondary potential difference smaller than the primary potential difference;

alternately executing applying a primary potential difference and applying a secondary potential difference at least one time each; and

applying to source lines a potential in which a pixel electrode potential variation is reflected in the opposing electrode potential, the pixel electrode potential variation being induced by a potential variation of the gate lines when the pixel

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transistor is switched to OFF from ON while applying a secondary potential difference, to charge the pixel electrodes,

wherein the potential of the source lines is modulated to a potential different from a potential difference in a period during which the secondary potential difference is applied so that the primary potential difference can be further increased in a period during which the primary potential difference is applied.

26. (Previously Presented) The method for driving the liquid crystal device according to claim 25, wherein applying a secondary potential difference applies the secondary potential difference within the range of ± 1 V.

27. (Previously Presented) The method for driving the liquid crystal device according to claim 25, wherein applying a secondary potential difference applies a potential equal to a potential of the opposing electrode to the source lines when the pixel transistors are OFF in a period during which the secondary potential difference is applied.

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28. (Previously Presented) The method for driving the liquid crystal device according to claim 25, comprising applying a potential to source lines at least once in an initial stage of a driving period for transition of the liquid crystal layer to the bend configuration.

29. (Previously Presented) The method for driving the liquid crystal device according to claim 25, comprising applying a potential to source lines at least once in an initial stage of a driving period for transition of the liquid crystal layer to the bend configuration, in the initial stage of which applying a primary potential difference and applying a secondary potential difference are initiated.

30. (Previously Presented) The method for driving the liquid crystal device according to claim 25, which comprises holding a direct current off-voltage of the gate line.

31. (Previously Presented) A driving circuit of a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a

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first substrate on which thin film transistors, gate lines and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, the driving circuit comprising:

primary potential difference application means for applying a primary potential difference, different from a potential difference in a normal image display period, between the pixel electrode and the opposing electrode;

secondary potential difference application means for applying a secondary potential difference smaller than the primary potential difference;

repeat control means for alternately operating the primary potential difference application means and the secondary potential difference application means at least one time each; and

charging means for applying to source lines a potential in which a pixel electrode potential variation is reflected in the opposing electrode potential, the pixel electrode potential variation being induced by a potential variation of the gate lines when the pixel transistor is switched to OFF from ON in the secondary potential difference application period, to charge the pixel electrodes,

wherein the potential of the source lines is modulated to a potential different from a potential difference in a period during which the secondary potential difference is applied so that the primary potential difference can be further increased in a period during which the primary potential difference is applied.

32. (Previously Presented) The driving circuit of the liquid crystal device according to claim 31, wherein the secondary potential difference application means is for applying the secondary potential difference within the range of ± 1 V.

33. (Previously Presented) The driving circuit of the liquid crystal device according to claim 31, wherein the secondary potential difference application means is for applying a potential equal to a potential of the opposing electrode to the source lines when the pixel transistors are OFF in the period during which the secondary potential difference is applied.

34. (Previously Presented) The driving circuit of the liquid crystal device according to claim 31, wherein the charging means is for operating at least once in an initial stage of a driving period

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for transition of the liquid crystal layer to the bend configuration.

35. (Previously Presented) The driving circuit of the liquid crystal device according to claim 31, wherein the charging means is for operating at least once in an initial stage of a driving period for transition of the liquid crystal layer to the bend configuration, in an initial stage of which the primary potential difference application means and the secondary potential difference application means are initiated.

36. (Previously Presented) The driving circuit of the liquid crystal device according to claim 31, which comprises gate line off-voltage direct current holding means for holding a direct current off-voltage of the gate line.

37. (Previously Presented) A method for driving a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors and pixel electrodes

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are located in a matrix and a second substrate on which an opposing electrode is located, the method comprising:

applying a primary potential difference, different from a potential difference in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate; and

applying a secondary potential difference smaller than the primary potential difference;

alternately controlling applying a primary potential difference and applying a secondary potential difference at least one time each,

wherein during alternately controlling applying a primary potential difference and applying a secondary potential difference, applying a secondary potential difference is performed first.

38. (Previously Presented) A driving circuit of a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, the driving circuit comprising:

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primary potential difference application means for applying a primary potential difference, different from a potential difference in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate;

secondary potential difference application means for applying a secondary potential difference smaller than the primary potential difference; and

repeat control means for allowing the secondary potential difference application means to operate first and allowing the primary potential difference application means and the secondary potential difference application means to alternately operate at least one time each.

39. (Previously Presented) A method for driving a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, the method comprising:

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applying a primary potential difference, different from a potential difference in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate;

applying a secondary potential difference smaller than the primary potential difference;

alternately executing applying a primary potential difference and applying a secondary potential difference at least one time each; and

applying a larger potential difference, of the potential differences applied to the liquid crystal layer in the normal image information display period, to the liquid crystal layer at least one field during a period from after completion of alternate execution of applying a primary potential difference and the applying a secondary potential difference at least one time each until the shift to the normal image information display period is achieved.

40. (Previously Presented) A driving circuit of a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a

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first substrate on which thin film transistors and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, the driving circuit comprising:

primary potential difference application means for applying a primary potential difference, different from a potential difference in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate; and

secondary potential difference application means for applying a secondary potential difference smaller than the primary potential difference;

means for alternately controlling the primary potential difference application means and the secondary potential difference application means at least one time each, and

high-potential-difference-for-transition application means for applying a relatively larger potential difference of the potential differences applied to the liquid crystal layer in the normal image information display period, to at least one field of the liquid crystal layer during a period from after completion of alternately executing of said means for applying a primary potential difference and said means for applying a secondary potential difference at

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least one time each until the shift to the normal image information display period is achieved.

41. (Previously Presented) A method for driving a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, the method comprising:

applying a primary potential difference, different from a potential difference in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate;

applying a secondary potential difference smaller than the primary potential difference;

allowing applying a secondary potential difference application to be initiated first, and alternately operating applying a primary potential difference and applying a secondary potential difference at least one time each, and

controlling activation of parts of the liquid crystal device in advance, to keep the aligned state of the liquid crystal layer

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from being disarranged to an excessive degree after power is turned on.

42. (Previously Presented) A driving circuit of a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, the driving circuit comprising:

primary potential difference application means for applying a primary potential difference, different from a potential difference in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate;

secondary potential difference application means for applying a secondary potential difference smaller than the primary potential difference;

repeat control means for allowing the means for secondary potential difference to be initiated first, and alternately operating the means for primary potential difference and the means for secondary potential difference at least one time each, and

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activation controlling means for controlling activation of parts of the liquid crystal device in advance, to keep an aligned state of the liquid crystal layer from being disarranged to an excessive degree after power is turned on.

43. (Previously Presented) A method for driving a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors, pixel electrodes, gate lines, and others are located in a matrix and a second substrate on which an opposing electrode is located, the method comprising:

providing a period during which a larger potential difference than a potential difference in a normal image display period is applied between the pixel electrode and the opposing electrode, while scanning the gate lines by using pulsed signals.

44. (Previously Presented) A driving circuit of a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors, pixel electrodes,

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gate lines, and others are located in a matrix and a second substrate on which an opposing electrode is located, the driving circuit comprising:

high potential difference application means for providing a period during which a larger potential difference than a potential difference in a normal image display period is applied between the pixel electrode and the opposing electrode, while scanning the gate lines by using pulsed signals.

45.-57. (Cancelled)

58. (Previously Added) A method for driving a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, the method comprising:

continuously applying a potential difference, different from a potential difference in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate, wherein,

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storage capacities connected to the pixel electrodes are formed between the pixel electrodes and common electrodes having potentials common to all the pixel electrodes, so that, by means of a ratio between pixel electrode capacities including the storage capacities and capacities between parasitic gate lines of the thin film transistors and the pixel electrodes, potential variation of the pixel electrodes accompanied by potential variation of the common electrodes results in a potential difference.

59. (Previously Added) A method for driving a liquid crystal device to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, the method comprising:

continuously applying a potential difference, different from a potential difference in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate, wherein,

storage capacities connected to the pixel electrodes are formed between the pixel electrodes and the gate lines one line

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front or behind, so that, by means of a ratio between pixel electrode capacities including the storage capacities and capacities between parasitic gate lines of the thin-film transistors and the pixel electrodes, potential variation of the pixel electrodes accompanied by potential variation of the gate lines one line front or behind results in the potential difference.

60. (Previously Added) A liquid crystal device having a driving circuit to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors and pixel electrodes are located in a matrix and a second substrate on which an opposing electrode is located, to a bend configuration, the liquid crystal device comprising:

different potential continuous application means for continuously applying a potential difference, different from a potential difference in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate, wherein

the different potential difference continuous application means comprises means for varying a common electrode potential by

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using means for continuously applying a different potential difference, wherein storage capacities connected to the pixel electrodes are formed between the pixel electrodes and common electrodes having potentials common to all the pixel electrodes, so that, by means of a ratio between pixel electrode capacities including the storage capacities and capacities between parasitic gate lines of the thin-film transistors and the pixel electrodes, potential variation of the pixel electrodes accompanied by potential variation of the common electrodes results in a potential difference.

61. (Previously Added) A liquid crystal device having a driving circuit to cause transition from a splay configuration to a bend configuration of a liquid crystal layer, located between a first substrate on which thin film transistors and pixel electrodes are formed in a matrix and a second substrate on which an opposing electrode is located, the liquid crystal device comprising:

different potential difference continuous application means for continuously applying a potential difference, different from a potential difference in a normal image display period, between the

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pixel electrode on the first substrate and the opposing electrode on the second substrate, wherein,

the different potential difference continuous application means comprises means for varying a gate line potential by using means for continuously applying a different potential difference, wherein storage capacities connected to the pixel electrodes are formed between the pixel electrodes and the gate lines one line front or behind, so that, by means of a ratio between pixel electrode capacities including the storage capacities and capacities between parasitic gate lines of the thin-film transistors and the pixel electrodes, potential variation of the pixel electrodes accompanied by the potential variation of the gate lines one line front or behind results in a potential difference.

62. (Previously Added) The method of driving a liquid crystal according to claim 58, wherein continuously varying a common electrode potential by continuously applying a different potential difference comprises making voltage applied to the common electrodes equal to voltage used for gate signals.

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63. (Previously Added) The method of driving a liquid crystal according to claim 59, wherein continuously varying a common electrode potential by continuously applying a different potential difference comprises making voltage applied to the common electrodes equal to voltage used for gate signals.

64. (Previously Added) The driving circuit of the liquid crystal device according to claim 60, wherein the means for varying a common electrode potential by using means for continuously applying a different potential difference comprises means for making voltage applied to the common electrodes equal to voltage used for gate signals.